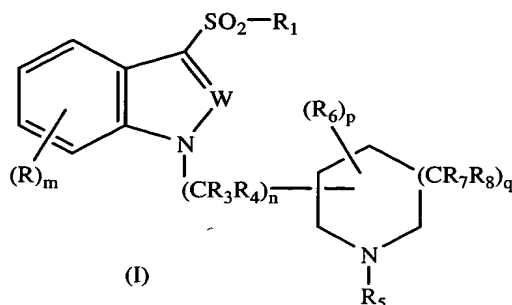


What is claimed is:

1. A compound of formula I

5



wherein

W is N or CR<sub>2</sub>;

10 R is halogen, CN, OCO<sub>2</sub>R<sub>9</sub>, CO<sub>2</sub>R<sub>10</sub>, CONR<sub>11</sub>R<sub>12</sub>, SO<sub>x</sub>R<sub>13</sub>, NR<sub>14</sub>R<sub>15</sub>, OR<sub>16</sub>, COR<sub>17</sub> or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl or heteroaryl group each optionally substituted;

15 R<sub>1</sub> is an optionally substituted C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl, or heteroaryl group or an optionally substituted 8- to 13-membered bicyclic or tricyclic ring system having a N atom at the bridgehead and optionally containing 1, 2 or 3 additional heteroatoms selected from N, O or S;

R<sub>2</sub> is H, halogen, or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl or heteroaryl group each optionally substituted;

R<sub>3</sub> and R<sub>4</sub> are each independently H or an optionally substituted C<sub>1</sub>-C<sub>6</sub>alkyl group;

20 R<sub>5</sub> is H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

R<sub>6</sub> is a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl or C<sub>2</sub>-C<sub>6</sub>alkynyl group each optionally substituted;

25 R<sub>7</sub> and R<sub>8</sub> are each independently H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl or C<sub>2</sub>-C<sub>6</sub>alkynyl group each optionally substituted;

m, n and p are each independently 0 or an integer of 1, 2 or 3;

q and x are each independently 0 or an integer of 1 or 2;

R<sub>9</sub>, R<sub>10</sub>, R<sub>13</sub> and R<sub>17</sub> are each independently H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

5 R<sub>11</sub> and R<sub>12</sub> are each independently H or an optionally C<sub>1</sub>-C<sub>6</sub>alkyl group or R<sub>11</sub> and R<sub>12</sub> may be taken together with the atom to which they are attached to form a 5- to 7-member ring optionally containing another heteroatom selected from O, N or S;

10 R<sub>14</sub> and R<sub>15</sub> are each independently H or an optionally substituted C<sub>1</sub>-C<sub>4</sub>alkyl group or R<sub>14</sub> and R<sub>15</sub> may be taken together with the atom to which they are attached to form a 5- to 7-membered ring optionally containing another heteroatom selected from O, NR<sub>18</sub> or SO<sub>x</sub>;

R<sub>16</sub> is a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted; and

15 R<sub>18</sub> is H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted; or

the stereoisomers thereof or the pharmaceutically acceptable salts thereof.

20 2. The compound according to claim 1 wherein n is 0.

3. The compound according to claim 1 wherein R<sub>5</sub> is H.

25 4. The compound according to claim 1 wherein R<sub>1</sub> is an optionally substituted phenyl group.

5. The compound according to claim 2 wherein q is 0 or 1.

30 6. The compound according to claim 2 wherein m is 0 and p is 0.

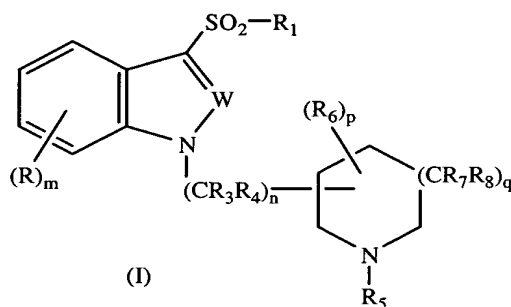
7. The compound according to claim 5 wherein the piperidinyl or pyrrolidinyl group is attached in the 3-position.

8. The compound according to claim 6 wherein  $R_1$  is an optionally substituted phenyl group and  $q$  is 0 or 1.

9. The compound according to claim 7 wherein  $W$  is N.

5

10. A method for the treatment of a central nervous system disorder related to or affected by the 5-HT<sub>6</sub> receptor in a patient in need thereof which comprises providing to said patient a therapeutically effective amount of a compound of formula I



10

wherein

$W$  is N or  $CR_2$ ;

$R$  is halogen, CN,  $OCO_2R_9$ ,  $CO_2R_{10}$ ,  $CONR_{11}R_{12}$ ,  $SO_xR_{13}$ ,  $NR_{14}R_{15}$ ,  $OR_{16}$ ,  $COR_{17}$  or a  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ alkynyl,  $C_3$ - $C_7$ cycloalkyl, aryl or heteroaryl group each optionally substituted;

15

$R_1$  is an optionally substituted  $C_1$ - $C_6$ alkyl,  $C_3$ - $C_7$ cycloalkyl, aryl, or heteroaryl group or an optionally substituted 8- to 13-membered bicyclic or tricyclic ring system having a N atom at the bridgehead and optionally containing 1, 2 or 3 additional heteroatoms selected from N, O or S;

20

$R_2$  is H, halogen, or a  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ alkoxy,  $C_3$ - $C_7$ cycloalkyl, aryl or heteroaryl group each optionally substituted;

$R_3$  and  $R_4$  are each independently H or an optionally substituted  $C_1$ - $C_6$ alkyl group;

$R_5$  is H or a  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ alkynyl,  $C_3$ - $C_7$ cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

25

$R_6$  is a  $C_1$ - $C_6$ alkyl,  $C_3$ - $C_7$ cycloalkyl,  $C_2$ - $C_6$ alkenyl or  $C_2$ - $C_6$ alkynyl group each optionally substituted;

$R_7$  and  $R_8$  are each independently H or a  $C_1$ - $C_6$ alkyl,  $C_3$ - $C_7$ cycloalkyl,  $C_2$ - $C_6$ alkenyl or  $C_2$ - $C_6$ alkynyl group each optionally substituted;  
 $m$ ,  $n$  and  $p$  are each independently 0 or an integer of 1, 2 or 3;  
 $q$  and  $x$  are each independently 0 or an integer of 1 or 2;  
5  $R_9$ ,  $R_{10}$ ,  $R_{13}$  and  $R_{17}$  are each independently H or a  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ alkynyl,  $C_3$ - $C_6$ cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;  
 $R_{11}$  and  $R_{12}$  are each independently H or an optionally  $C_1$ - $C_6$ alkyl group or  $R_{11}$  and  $R_{12}$  may be taken together with the atom to which they are  
10 attached to form a 5- to 7-member ring optionally containing another heteroatom selected from O, N or S;  
 $R_{14}$  and  $R_{15}$  are each independently H or an optionally substituted  $C_1$ - $C_4$ alkyl group or  $R_{14}$  and  $R_{15}$  may be taken together with the atom to which they are attached to form a 5- to 7-membered ring optionally  
15 containing another heteroatom selected from O,  $NR_{18}$  or  $SO_x$ ;  
 $R_{16}$  is a  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ alkynyl,  $C_3$ - $C_7$ cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;  
and  
 $R_{18}$  is H or a  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ alkynyl,  $C_3$ - $C_7$ cycloalkyl,  
20 cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;  
or

the stereoisomers thereof or the pharmaceutically acceptable salts thereof.

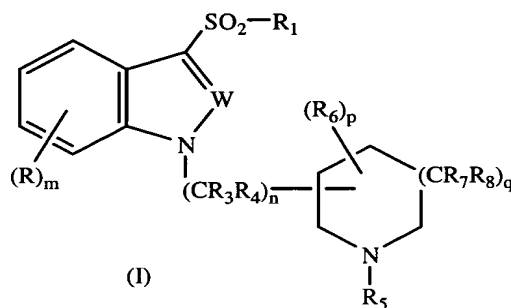
11. The method according to claim 10 wherein said disorder is a motor  
25 disorder, anxiety disorder or cognitive disorder.

12. The method according to claim 10 wherein said disorder is a neurodegenerative disorder.

13. The method according to claim 11 wherein said disorder is attention  
30 deficit disorder or obsessive compulsive disorder.

14. The method according to claim 12 wherein said disorder is stroke or head trauma.

15. A pharmaceutical composition which comprises a pharmaceutically acceptable carrier and an effective amount of a compound of formula I



5

wherein

W is N or CR<sub>2</sub>;

R is halogen, CN, OCO<sub>2</sub>R<sub>9</sub>, CO<sub>2</sub>R<sub>10</sub>, CONR<sub>11</sub>R<sub>12</sub>, SO<sub>x</sub>R<sub>13</sub>, NR<sub>14</sub>R<sub>15</sub>, OR<sub>16</sub>,

10

COR<sub>17</sub> or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl or heteroaryl group each optionally substituted;

R<sub>1</sub> is an optionally substituted C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl, or heteroaryl group or an optionally substituted 8- to 13-membered bicyclic or tricyclic ring system having a N atom at the bridgehead and optionally containing 1, 2 or 3 additional heteroatoms selected from N, O or S;

15

R<sub>2</sub> is H, halogen, or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl or heteroaryl group each optionally substituted;

R<sub>3</sub> and R<sub>4</sub> are each independently H or an optionally substituted C<sub>1</sub>-C<sub>6</sub>alkyl group;

20

R<sub>5</sub> is H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

R<sub>6</sub> is a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl or C<sub>2</sub>-C<sub>6</sub>alkynyl group each optionally substituted;

R<sub>7</sub> and R<sub>8</sub> are each independently H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl or C<sub>2</sub>-C<sub>6</sub>alkynyl group each optionally substituted;

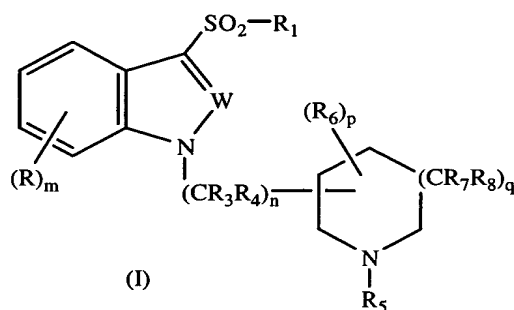
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m, n and p are each independently 0 or an integer of 1, 2 or 3;

q and x are each independently 0 or an integer of 1 or 2;

R<sub>9</sub>, R<sub>10</sub>, R<sub>13</sub> and R<sub>17</sub> are each independently H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

- R<sub>11</sub> and R<sub>12</sub> are each independently H or an optionally C<sub>1</sub>-C<sub>6</sub>alkyl group or R<sub>11</sub> and R<sub>12</sub> may be taken together with the atom to which they are attached to form a 5- to 7-member ring optionally containing another heteroatom selected from O, N or S;
- 5 R<sub>14</sub> and R<sub>15</sub> are each independently H or an optionally substituted C<sub>1</sub>-C<sub>4</sub>alkyl group or R<sub>14</sub> and R<sub>15</sub> may be taken together with the atom to which they are attached to form a 5- to 7-membered ring optionally containing another heteroatom selected from O, NR<sub>18</sub> or SO<sub>x</sub>;
- 10 R<sub>16</sub> is a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted; and
- R<sub>18</sub> is H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted; or
- 15 the stereoisomers thereof or the pharmaceutically acceptable salts thereof.
16. The composition according to claim 15 having a formula I compound wherein n is 0.
- 20 17. The composition according to claim 16 having a formula I compound wherein R<sub>5</sub> is H and q is 0 or 1.
18. The composition according to claim 17 having a formula I compound wherein R<sub>1</sub> is an optionally substituted phenyl group.
- 25 19. The composition according to claim 18 having a formula I compound wherein the piperidiny1 or pyrrolidinyl group is attached in the 3-position.
20. A process for the preparation of a compound of formula I
- 30



wherein

W is N or CR<sub>2</sub>;

R is halogen, CN, OCO<sub>2</sub>R<sub>9</sub>, CO<sub>2</sub>R<sub>10</sub>, CONR<sub>11</sub>R<sub>12</sub>, SO<sub>x</sub>R<sub>13</sub>, NR<sub>14</sub>R<sub>15</sub>, OR<sub>16</sub>,

5 COR<sub>17</sub> or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl or heteroaryl group each optionally substituted;

R<sub>1</sub> is an optionally substituted C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl, or heteroaryl group or an optionally substituted 8- to 13-membered bicyclic or tricyclic ring system having a N atom at the bridgehead and optionally containing

10 1, 2 or 3 additional heteroatoms selected from N, O or S;

R<sub>2</sub> is H, halogen, or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, aryl or heteroaryl group each optionally substituted;

R<sub>3</sub> and R<sub>4</sub> are each independently H or an optionally substituted C<sub>1</sub>-C<sub>6</sub>alkyl group;

15 R<sub>5</sub> is H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

R<sub>6</sub> is a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl or C<sub>2</sub>-C<sub>6</sub>alkynyl group each optionally substituted;

20 R<sub>7</sub> and R<sub>8</sub> are each independently H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>3</sub>-C<sub>7</sub>cycloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl or C<sub>2</sub>-C<sub>6</sub>alkynyl group each optionally substituted;

m, n and p are each independently 0 or an integer of 1, 2 or 3;

q and x are each independently 0 or an integer of 1 or 2;

25 R<sub>9</sub>, R<sub>10</sub>, R<sub>13</sub> and R<sub>17</sub> are each independently H or a C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

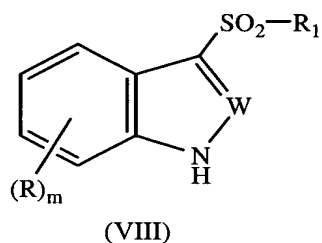
R<sub>11</sub> and R<sub>12</sub> are each independently H or an optionally C<sub>1</sub>-C<sub>6</sub>alkyl group or R<sub>11</sub> and R<sub>12</sub> may be taken together with the atom to which they are

attached to form a 5- to 7-member ring optionally containing another heteroatom selected from O, N or S;

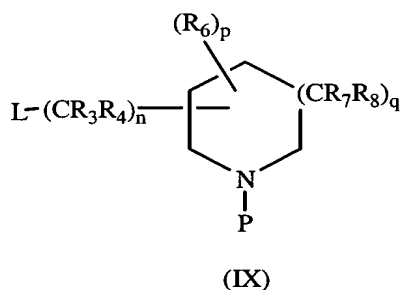
$R_{14}$  and  $R_{15}$  are each independently H or an optionally substituted  $C_1$ - $C_4$ alkyl group or  $R_{14}$  and  $R_{15}$  may be taken together with the atom to which they are attached to form a 5- to 7-membered ring optionally containing another heteroatom selected from O,  $NR_{18}$  or  $SO_x$ ;

$R_{16}$  is a  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ alkynyl,  $C_3$ - $C_7$ cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted; and

$R_{18}$  is H or a  $C_1$ - $C_6$ alkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ alkynyl,  $C_3$ - $C_7$ cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted which process comprises reacting a compound of formula VIII



wherein W, R,  $R_1$  and m are as described hereinabove with a protected azacyclic compound of formula IX



wherein P is a protecting group; L is a leaving group; and  $R_3$ ,  $R_4$ ,  $R_6$ ,  $R_7$ ,  $R_8$ , n, p and q are as described hereinabove in the presence of a first base to give the protected



formula I compound; and deprotecting said compound to give the free amine of formula I wherein  $R_5$  is H optionally alkylating said amine with an alkylating agent,  $R_5-L'$ , wherein  $L'$  is a leaving group in the presence of a second base.